UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/697,336	10/30/2003	Peter Tiemann	2000P20253WOUS	7494

7590 06/28/2005

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPT.
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER	
KIM, TAE JUN	

ART UNIT	PAPER NUMBER
3746	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/697,336	TIEMANN, PETER	
	Examiner	Art Unit	
	Ted Kim	3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10/30/2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) *8-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/30/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment to the specification on the first line made 10/30/2003 is improper. Applicant claims this is the US national stage of PCT/EP02/05578, etc. This is only applicable if the application is filed as a 371. It appears applicant was attempting to claim priority to the PCT under 35 USC 120, in which applicant is entitled to claim priority to the PCT as a continuation or possibly a continuation-in-part, according to the requirements of the disclosure set forth in the MPEP. See MPEP 1893.03(a) How To Identify That an Application Is a U.S. National Stage Application and MPEP 1896 The Differences Between a National Application Filed Under 35 U.S.C. 111(a) and a National Stage Application Submitted Under 35 U.S.C. **371**.

Response to Amendment

2. Applicant's replacement amended sheets for the specification and claims filed 10/30/2003 have not been entered because this is not proper procedure for a US application filed under 35 U.S.C. 111(a).

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 85 (see page 10, lines 5+). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each

drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 8-17, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Dixon et al (5,158,430). Dixon et al teach a heat shield arrangement for a hot-gas conducting structure, comprising: a support structure 34; a plurality of shield elements 60 arranged adjacently on the support structure and anchored 50 to the support structure to cover a surface, at least two adjacent heat shield elements 60 having at least one lateral groove 106 arranged in a region of an edge of the surface facing the hot gas; and at least one seal element 125 or 108 installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas (see especially Figs. 4a, 4b); wherein the seal element is metal (col. 5, line 19) has an substantially C-shaped

cross-section (Fig. 5); wherein the seal element is a bent plate and is by definition "sheet metal"; wherein the seal element is adapted to be retained in an open position without a sealing effect as a consequence of the longitudinal slot 106 embodied through the C-shaped cross-section; the hot-gas conducting structure is a metal component of a gas turbine unit. Dixon et al teach method for producing a heat shield arrangement, comprising: providing a support structure 34; providing a plurality of shield elements 60 arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove 106 arranged in a region of an edge of the surface facing the hot gas; providing at least one seal element 125 or 108 installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas; anchoring a first and a second heat shield element on the support structure leaving a space for a third heat shield element so that the groove of the first heat shield element is situated opposite the groove of the second heat shield element; installing a seal element in each case in the groove of the first and of the second heat shield element in such a way that the seal element is retained in the first position; moving the third heat shield element having in each case a groove on opposite sides into the space in the direction of the support structure with a seal element in each case protruding into one of these grooves; displacing the seal element in each case into the second position due to the movement (B) of the

third heat shield element; and anchoring the third heat shield element on the support structure. Note that since the claimed structure is the same, the apparatus is inherently capable of being assembled in the same manner.

6. Claims 8-17, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Grosjean (4,537,024). Grosjean teaches a heat shield arrangement for a hot-gas conducting structure, comprising: a support structure 40; a plurality of shield elements 94 arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove 176, 178 arranged in a region of an edge of the surface facing the hot gas; and at least one seal element 102 or 190 or 204 installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas (note that the grooves may be non-parallel and misaligned during operation (col. 2, lines 40+; col; 5, lines 55+); wherein the seal element has an substantially C-shaped cross-section (Figs. 4 or 5); wherein the seal element is a bent metal plate (col. 5, lines 55+, Hastelloy is a metal); the plate is by definition sheet metal; wherein the seal element is adapted to be retained in an open position without a sealing effect as a consequence of the longitudinal slot embodied through the C-shaped cross-section; the hot-gas conducting structure is a metal component of a gas turbine unit. The method for producing a heat shield arrangement, comprising: providing a support structure 40; providing a plurality of

shield elements arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove arranged in a region of an edge of the surface facing the hot gas; providing at least one seal element installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas; anchoring a first and a second heat shield element on the support structure leaving a space for a third heat shield element so that the groove of the first heat shield element is situated opposite the groove of the second heat shield element; installing a seal element in each case in the groove of the first and of the second heat shield element in such a way that the seal element is retained in the first position; moving the third heat shield element having in each case a groove on opposite sides into the space in the direction of the support structure with a seal element in each case protruding into one of these grooves; displacing the seal element in each case into the second position due to the movement (B) of the third heat shield element; and anchoring the third heat shield element on the support structure. Note that since the claimed structure is the same, the apparatus is inherently capable of being assembled in the same manner.

7. Claims 8-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayton (6,203,025). Hayton teaches a heat shield arrangement for a hot-gas conducting structure, comprising: a support structure 6, 8; a plurality of shield elements 6, 8 arranged

adjacently on the support structure and anchored to the support structure (note they are detachably mounted, col. 2, lines 7+) to cover a surface, at least two adjacent heat shield elements having at least one lateral groove 24, 26 arranged in a region of an edge of the surface facing the hot gas; and at least one seal element 16 installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas (see Fig. 2); wherein the seal element has an substantially C-shaped cross-section; wherein the seal element is a bent plate; the plate comprises sheet metal (col. 2, lines 7+); wherein the seal element is adapted to be retained in an open position without a sealing effect as a consequence of the longitudinal slot embodied through the C-shaped cross-section; the hot-gas conducting structure is a metal component of a gas turbine unit; and can be a combustion chamber (the afterburner of a gas turbine engine is a combustion chamber, col. 1, lines 5+). Hayton teaches a method for producing a heat shield arrangement, comprising: providing a support structure; providing a plurality of shield elements arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove arranged in a region of an edge of the surface facing the hot gas; providing at least one seal element installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield

elements vertically with respect to its surface facing the hot gas; anchoring a first and a second heat shield element on the support structure leaving a space for a third heat shield element so that the groove of the first heat shield element is situated opposite the groove of the second heat shield element; installing a seal element in each case in the groove of the first and of the second heat shield element in such a way that the seal element is retained in the first position; moving the third heat shield element having in each case a groove on opposite sides into the space in the direction of the support structure with a seal element in each case protruding into one of these grooves; displacing the seal element in each case into the second position due to the movement (B) of the third heat shield element; and anchoring the third heat shield element on the support structure. Note that since the claimed structure is the same, the apparatus is inherently capable of being assembled in the same manner.

8. Claims 8-10, 13-17, 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Tassoni (2,991,045). Tassoni teaches a heat shield arrangement for a hot-gas conducting structure, comprising: a support structure 22 ; a plurality of shield elements 35 arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove 42 arranged in a region of an edge of the surface facing the hot gas; and at least one seal element 51 installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements

vertically with respect to its surface facing the hot gas (col. 3, lines 14+); wherein the seal element has an substantially C-shaped cross-section; wherein the seal element is a bent plate; the plate comprises sheet metal; wherein the seal element is adapted to be retained in an open position without a sealing effect as a consequence of the longitudinal slot embodied through the C-shaped cross-section; the hot-gas conducting structure is a metal component of a gas turbine unit. Tassoni teaches a method for producing a heat shield arrangement, comprising: providing a support structure; providing a plurality of shield elements arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove arranged in a region of an edge of the surface facing the hot gas; providing at least one seal element installed in the groove and connecting the heat shield elements, the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas; anchoring a first and a second heat shield element on the support structure leaving a space for a third heat shield element so that the groove of the first heat shield element is situated opposite the groove of the second heat shield element; installing a seal element in each case in the groove of the first and of the second heat shield element in such a way that the seal element is retained in the first position; moving the third heat shield element having in each case a groove on opposite sides into the space in the direction of the support structure with a seal element in each case protruding into one of these grooves; displacing the seal

element in each case into the second position due to the movement (B) of the third heat shield element; and anchoring the third heat shield element on the support structure. Note that since the claimed structure is the same, the apparatus is inherently capable of being assembled in the same manner.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 8-17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grosjean (4,537,024) in view of Bertelson (3,728,041). Grosjean teaches the claimed invention including a metal plate, which is by definition sheet metal, for the seal but does not specifically teach use the term "sheet metal." However, sheet metal is old and well known in the art for such seals and would have been obvious to employ as a well known type of material used to make such seals. Grosjean appears to teach the claimed method as the structure is the same, however, in order to obviate any doubt, Bertelson teaches attaching a heat shield with the seal 32 between first and second heat shield elements and moving the third heat shield element vertically to displace the last seal element into place and then anchoring the third seal element. It would have been obvious to one of ordinary

skill in the art to employ the order claimed in order to facilitate a well known attachment sequence used in the art.

11. Claims 8-17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dixon et al (5,158,430) in view of Bertelson (3,728,041). Dixon et al teach the claimed invention including a metal plate, which is by definition sheet metal, for the seal but does not specifically teach use the term "sheet metal." However, sheet metal is old and well known in the art for such seals and would have been obvious to employ as a well known type of material used to make such seals. Dixon et al appear to teach the claimed method as the structure is the same, however, in order to obviate any doubt, Bertelson teaches attaching a heat shield with the seal 32 between first and second heat shield elements and moving the third heat shield element vertically to displace the last seal element into place and then anchoring the third seal element. It would have been obvious to one of ordinary skill in the art to employ the order claimed in order to facilitate a well known attachment sequence used in the art.

12. Claims 8-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayton (6,203,025) in view of Bertelson (3,728,041) and optionally either Johnson et al (5,417,056) or EP 778408. Hayton appears to teach the claimed method as the structure is the same, however, in order to obviate any doubt, Bertelson teaches attaching a heat shield with the seal 32 between first and second heat shield elements and moving the third heat shield element vertically to displace the last seal element into place and then anchoring the third seal element. It would have been obvious to one of ordinary skill in

the art to employ the order claimed in order to facilitate a well known attachment sequence used in the art. The liner of Hayton is believed to include being in the afterburner and thus comprises a combustion chamber. In order to obviate any doubt, Johnson et al is cited to show a liner 49 in the afterburner/thrust augmentor is well known. EP 778408 teach that a liner in the afterburner/thrust augmentor is old and well known in the art. It would have been obvious to one of ordinary skill in the art to apply the liner of Hayton to an afterburner, in order to allow for thermal expansion and/or relative movement.

13. Claims 8-17, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tassoni in view of Bertelson (3,728,041) and optionally Dixon et al (5,158,430). Tassoni appears to teach the claimed method as the structure is the same, however, in order to obviate any doubt, Bertelson teaches attaching a heat shield with the seal 32 between first and second heat shield elements and moving the third heat shield element vertically to displace the last seal element into place and then anchoring the third seal element. It would have been obvious to one of ordinary skill in the art to employ the order claimed in order to facilitate a well known attachment sequence used in the art. Tassoni teaches a resilient material but does not teach a sheet metal plate. Dixon et al teach a resilient sheet metal plate for the seal is old and well known in the art. It would have been obvious to one of ordinary skill in the art to employ a resilient sheet metal plate for the seal, as a well known type of seal used in the analogous environment.

14. Claims 8-12, 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19643715 in view of any of Dixon et al (5,158,430), Grosjean (4,537,024), and Tassoni (2,991,045). DE '715 teaches a heat shield arrangement for a hot-gas conducting structure/combustion chamber of a gas turbine, comprising: a support structure; a plurality of shield elements 2 arranged adjacently on the support structure and anchored to the support structure to cover a surface, at least two adjacent heat shield elements having at least one lateral groove arranged in a region of an edge of the surface facing the hot gas; and at least one meta seal element 20 installed in the groove and connecting the heat shield elements. DE '715 does not teach the seal element and the grooves contoured and dimensioned such that the seal element is adapted to be swiveled in the grooves during movement of at least one of the heat shield elements vertically with respect to its surface facing the hot gas; wherein the seal element has an substantially C-shaped cross-section. As applied above, Dixon et al, Grosjean and Tassoni each teach a resilient C-shaped seal element within a lateral groove allowing for thermal expansion and swiveling of the seals during vertical movement of the heat shield elements. Dixon and Grosjean further teach the seal is made of sheet metal. It would have been obvious to one of ordinary skill in the art to employ the seal and groove configuration of any of Dixon et al, Grosjean and Tassoni, in order to allow for swiveling and better handle thermal expansion. It would have been obvious to one of ordinary skill in the art to employ a resilient sheet metal plate for the seal, as a well known type of seal used in the analogous environment.

15. Claims 13, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DE 19643715 in view of any of Dixon et al (5,158,430), Grosjean (4,537,024), and Tassoni (2,991,045), as applied above, and further in view of Bertelson (3,728,041). DE 19643715 teach the claimed structure and appear to teach the claimed method as the structure is the same, however, in order to obviate any doubt, Bertelson teaches attaching a heat shield with the seal 32 between first and second heat shield elements and moving the third heat shield element vertically to displace the last seal element into place and then anchoring the third seal element. It would have been obvious to one of ordinary skill in the art to employ the order claimed in order to facilitate a well known attachment sequence used in the art.

Contact Information

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Ted Kim whose telephone number is 571-272-4829. The Examiner can be reached on regular business hours before 5:00 pm, Monday to Thursday and every other Friday.

The fax numbers for the organization where this application is assigned are 703-872-9306 for Regular faxes and 703-872-9306 for After Final faxes.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Thorpe, can be reached at 571-272-4444.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist of Technology Center 3700, whose telephone number is 703-308-0861. General inquiries can also be directed to the Patents Assistance Center whose telephone number is 800-786-9199. Furthermore, a variety of online resources are available at http://www.uspto.gov/main/patents.htm

Ted Kim	Telephone	571-272-4829
Primary Examiner	Fax (Regular)	703-872-9306
June 22, 2005	Fax (After Final)	703-872-9306
Technology Center 3700 Receptionist	Telephone	703-308-0861
Patents Assistance Center	Telephone	800-786-9199